

entirely metallic thermal path for conducting heat from said first exterior extrusion surface to a heat transfer fluid contained within said plurality of micro tubes;

¹⁸
an inlet tube;

and inlet end cap interconnecting the micro tube inlets in fluid communication and connecting the micro tube inlets in fluid communication with said inlet tube;

²²
an outlet tube;

an outlet end cap interconnecting the micro tube outlets in fluid communication and connecting the micro tube outlet in fluid communication with said outlet tube;

[a heat transfer fluid;]

²⁴
means for circulating said heat transfer fluid through said inlet tube, said inlet end cap, the plurality of micro tubes of said low profile extrusion, said outlet end cap, and said outlet tube; and

²⁵
means for removing heat from said heat transfer fluid.

Please add new claims 2-20 as follows:

-- 2. The cooling apparatus of claim 1, wherein said low profile metal extrusion is formed of a first metal material.

3. The cooling apparatus of claim 2, wherein said first metal material is in thermal contact with said at least one heat generating component, and said first metal material is further in direct contact with said heat transfer fluid.

4. The cooling apparatus of claim 2, wherein said low profile metal extrusion is plated on an exterior surface with a second metal material.

5. The cooling apparatus of claim 1, further comprising at least one thermoelectric cooling unit disposed between said at least one heat generating component and said first exterior extrusion surface.

6. The cooling apparatus of claim 1, wherein said low profile metal extrusion further comprises a plurality of fins on a second exterior surface opposite said first exterior extrusion surface adapted for receiving heat.

7. The cooling apparatus of claim 1, wherein said low profile metal extrusion further comprises a plurality of fins or grooves on an interior surface of each of said plurality of micro tubes.

8. A cooling apparatus for removing heat from at least one heat generating component, said cooling apparatus comprising:

a low profile extrusion having a flattened exterior extrusion surface adapted for receiving heat from the at least one heat generating component and a plurality of micro tubes with a micro tube inlet and a micro tube outlet, said low profile extrusion having a flattened interior extrusion surface forming a portion of each of said plurality of micro tubes;

an inlet tube;

and inlet end cap interconnecting the micro tube inlets in fluid communication and connecting the micro tube inlets in fluid communication with said inlet tube;

an outlet tube;

an outlet end cap interconnecting the micro tube outlets in fluid communication and connecting the micro tube outlet in fluid communication with said outlet tube;
a heat transfer fluid;
means for circulating said heat transfer fluid through said inlet tube, said inlet end cap, the plurality of micro tubes of said low profile extrusion, said outlet end cap, and said outlet tube; and
means for removing heat from said heat transfer fluid.

9. The cooling apparatus of claim 8, wherein each of said micro tubes are substantially rectangular in shape.

10. The cooling apparatus of claim 8, wherein said low profile extrusion is formed of a metal material.

11. The cooling apparatus of claim 10, wherein said metal material is in thermal contact with said at least one heat generating component, and said metal material is further in direct contact with said heat transfer fluid.

12. The cooling apparatus of claim 8, further comprising at least one thermoelectric cooling unit disposed between said at least one heat generating component and said first exterior extrusion surface.

13. The cooling apparatus of claim 8, wherein said low profile extrusion further comprises a plurality of fins or grooves on an interior surface of each of said plurality of micro tubes.

14. A cooling apparatus for removing heat from at least one heat generating component, said cooling apparatus comprising:

a low profile extrusion having an evaporator section and a condenser section, said evaporator section having a first exterior extrusion surface adapted for receiving heat from the at least one heat generating component;

Q2 said low profile extrusion further comprising a plurality of micro tubes, each of said tubes being sealed at opposite ends and extending through and between the evaporator and condenser sections;

a heat transfer fluid contained within each of said micro tubes; and

wherein said heat transfer fluid absorbs heat from said at least one heat generating component in said evaporator region and undergoes a phase change from liquid to gas, moves to the condenser region, is cooled therein and undergoes a phase change from gas to liquid, and returns to the evaporator section.

15. The cooling apparatus of claim 14, wherein each of said plurality of micro tubes are individually sealed.

16. The cooling apparatus of claim 14, wherein each of said plurality of micro tubes are connected in fluid communication.

17. The cooling apparatus of claim 14, further comprising a wick within each of said micro tubes.